ROYCE 639 40 CANALI AM/SSB

SPECIFICATIONS

GENERAL

1. Semiconductors	:	22 Transistors, 2 FET, 10 IC's, 54 Diodes and 3 LED
2. Frequency Range	:	26.965MHZ – 27.405MHZ
3. Modes of Operation	:	AM, Lower Sideband and Upper Sideband
4. Controls	:	Volume Control with power on-off switch
	:	Variable Squelch Control
	:	Mike Gain Control.
	:	RF Gain Control.
	:	SWR/CAL Control.
	:	Mode Selector Switches
	:	Clarifier Control
	:	Channel Selector Switch
	:	Noise Blanker/ANL Switch.
	:	Meter Select Switch.
	:	CH-9 Priority Switch
	:	Bright/Dim Switch
	:	CB-PA Switch
5. Connectors and Jacks	:	Microphone Connector
	:	Coaxial type Antenna Connector
	:	Public Address Speaker Jack
	:	External Speaker Jack
	:	DC Power Jack
6. Speaker	:	3-1/2 inches, 8 ohms
7. Microphone	:	Dynamic Microphone (500 Ohms)
8. Power Supply	:	13.8VDC
9. Dimensions	:	8" (W) x 1-1/8" (H) x 7-5/16" (D)
10. Weight	:	4 LBS 07 OZS

RECEIVER

1. Sensitivity at S/N 10dB	:	AM..... 0.5uV SSB.....0.2uV
2. Selectivity	:	AM..... 5KHZ SSB.....2.2KHZ
3. AGC Figure of Range	:	80dB
4. Squelch Range	:	0.5uV – 1000uV
5. Audio Output Power	:	3 Watts
6. Distortion at input 100uV	:	6%
7. Audio Frequency Response	:	300 – 2200HZ
8. Supurious Response	:	More than 45dB supurious signal is required to produce the same amount of audio output as the desired receive signal.
9. IF Frequency	:	9.785MHZ
10. Current Drain no audio	:	500mA

SSB TRANSMITTER

1. RF Output Power	:	12 Watts PEP
2. Carrier Suppression	:	More than 40dB
3. Unwanted Sideband Suppression	:	More than 50dB
4. Harmonic Suppression	:	More than 60dB
5. Current Drain	:	850mA

AM TRANSMITTER

1. RF Output Power	:	4 Watts
2. Modulation Capability	:	More than 80%
3. Harmonic Suppression	:	More than 60dB
4. Current Drain	:	1800mA

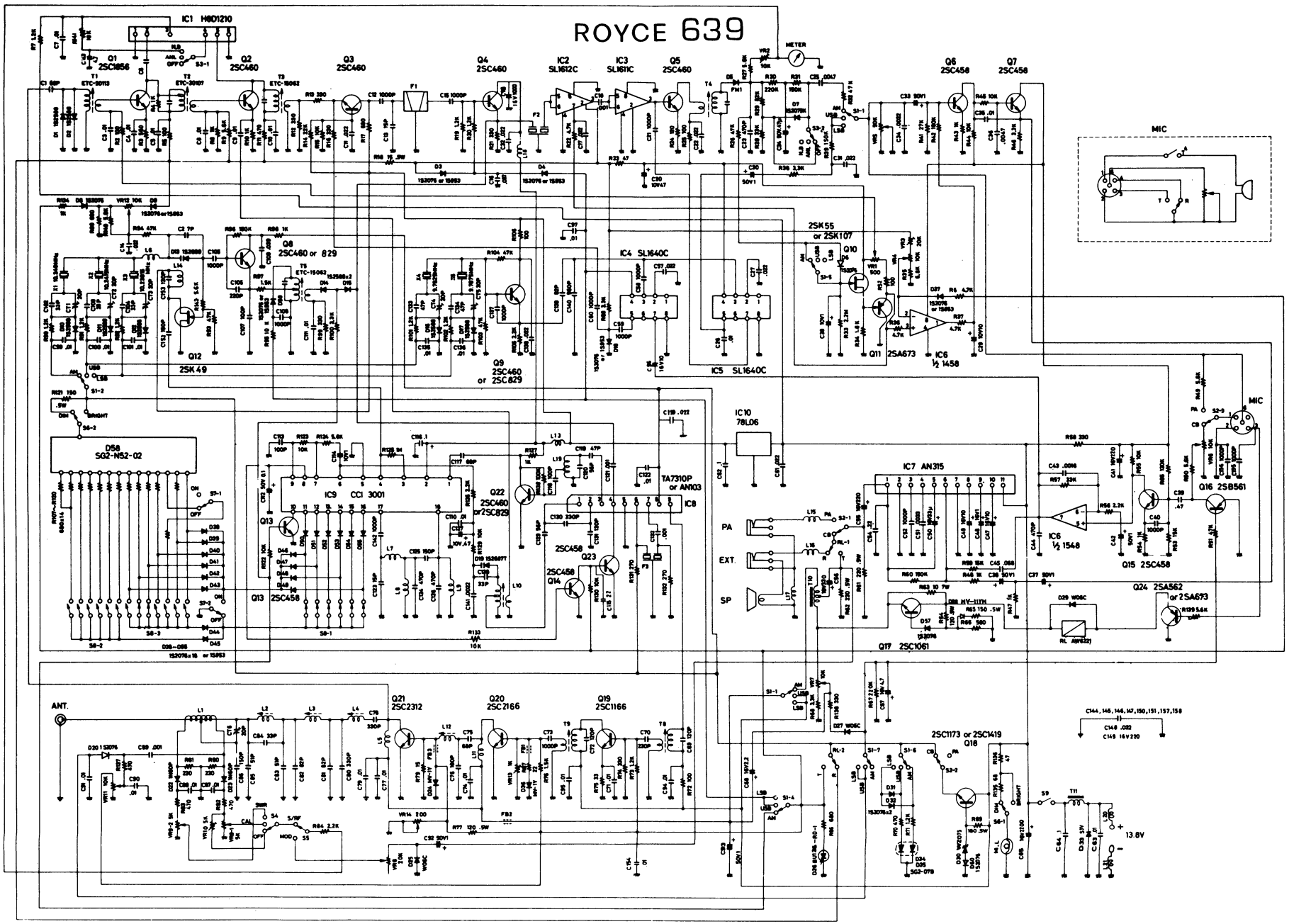
ALIGNMENT INSTRUCTIONS

1. RECEIVER

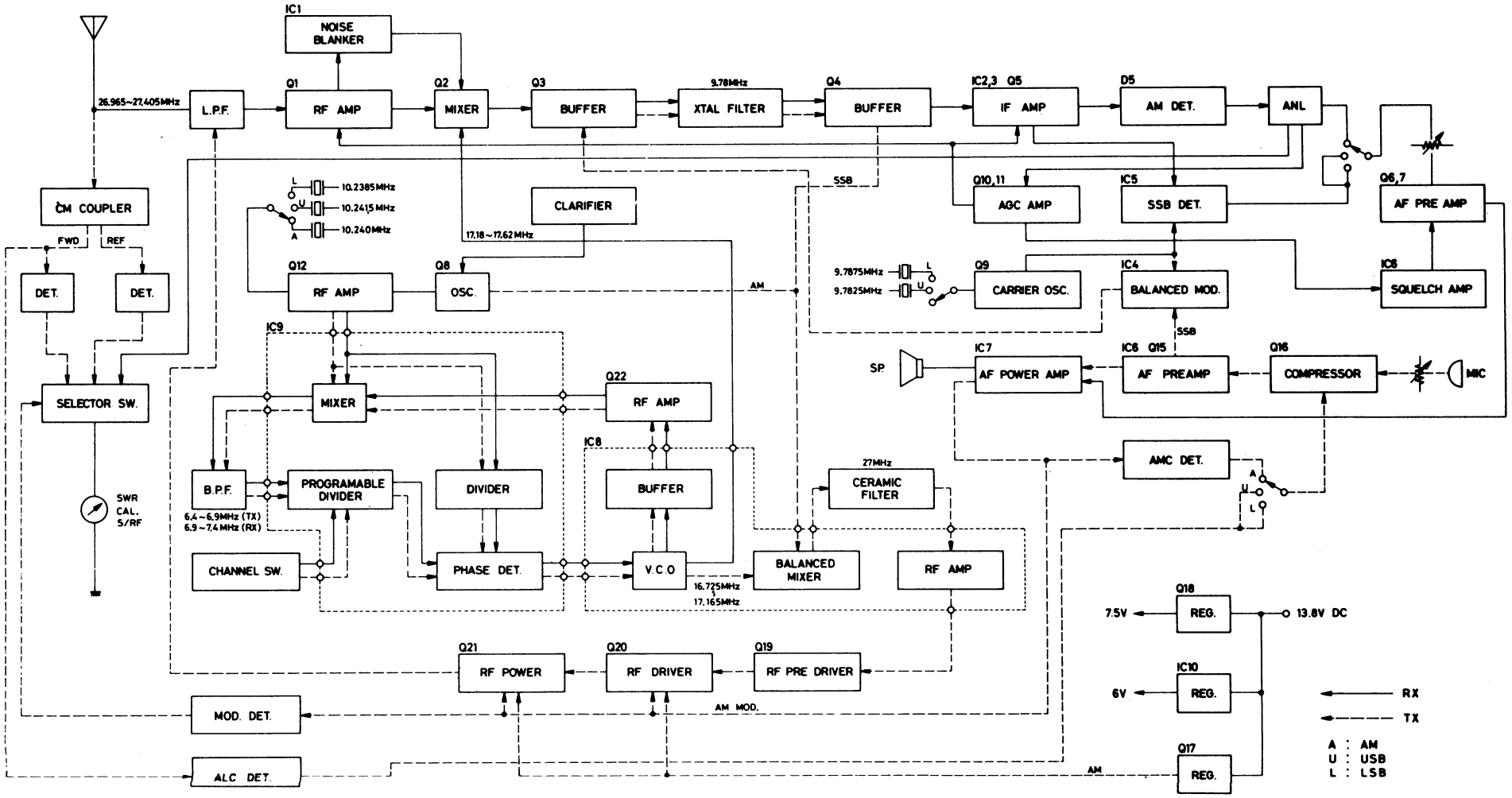
1) Set the Mode Switch to AM, Volume Control at maximum, Squelch at minimum, Clarifier in the center and the CB-PA Switch to CB.
2) Set the SSG on Channel 19 and Channel Selector of the unit on Channel 19.
   Then, connect the Power Supply and 8 ohms Dummy Load to the transceiver unit.
3) Feed the signal from the SSG and set the audio output for a peak reading by adjusting T-1, T-2, T-3, and T-4.
   In this case be sure that antenna input should be less than 1μV at the AF standard output power. Also, make sure that the audio on the oscilloscope is a sine wave.
4) Set the antenna input at 1μV so that the antenna power may be more than 0.5. Watt at the maximum volume of all channels.
5) Set the antenna input at 1,000μV so that the output power should be more than 3.0 watts at the maximum volume.
6) Set the antenna input to 50,000μV and the low frequency output to 0.5 watt by volume control. Then, decrease the antenna input until the low frequency output stays 10 dB lower. Be sure that the antenna input then should be less than 5μV.
7) Set the antenna input to 100μV and the meter indication to 9 by VR-2.
8) Set the volume control and squelch control at maximum, and set the tight squelch by VR3 so that the output from speaker is heard when the antenna input is increased upto 1,000μV.
9) Set the antenna input to 0.7μV and be sure that the low frequency output should be over 10 dB more when the modulation of the SSG is turned off at the normal output.
10) Set the Mode Switch to USB, Volume Control at maximum, Squelch at minimum and Clarifier in the center. Tune off the modulation of the SSG and remove the frequency by 1 KHz.
11) Make sure that the maximum sensitivity should be less than 1μV.
12) Make sure of AGC like with AM.
13) Set the antenna input to 0.2μV and keep the AF output to be over 10 dB lower when the antenna input is turned off at the normal output.

2. TRANSMITTER

1) Connection of test equipment.
   * Power supply at 13.8 VDC.
   * Connect a Power meter, oscilloscope frequency counter, spectrum analyzer and P-P RF volt meter to the RF output connector.
   * Connect an AF oscillator and AF volt meter to the microphone connector.
2) Power adjustment.
   * Set the mode switch to AM.
   * Adjust T-5, 8, 9, L-12, and L-3 for the maximum point.
   * Adjust L-4 for 3.6W output.
   * Adjust L-2 to increase 2nd harmonic.
3) Frequency-Make sure every channel stays within ±800Hz.
4) Modulation Limiter Adjustment.
   * Put in 1KHz and 20mV signal from AF oscillator and adjust VR7 for 90% modulation
5) Modulation capability.
   * Put in 1kHz signal by AF oscillator and get 90% modulation for the minus side. The plus side should be over 80%.
6) SSB.
   * Set the mode switch to USB.
   * Put in two-tone signal of 1KHz and 1.6KHz by two AF oscillators.
7) ALC alignment.
   * Adjust the two-tone signal of AF oscillator for 3 W RF power output.
   * Adjust VR-11 for 11 W PEP RF power output when the two-tone signal is increased by 20 dB.
8) Carrier suppression.
   * Cut off the two-tone signal and make sure the output level of the carrier is below –40 dB.
   * Set the mode switch to LSB and do the same.


ROYCE 639
IC1 HBD1210
Q1 2SC1856
Q2 2SC460
Q3 2SC460
Q4 2SC460
IC2 SL1612C
IC3 SL1611C
Q5 2SC460
Q6 2SC458
Q7 2SC458
METER
MIC
2SK55 or 2SK107
Q10
Q11 2SA673
IC6 ½ 1458
IC4 SL1640C
IC5 SL1640C
Q8 2SC460 or 829
Q9 2SC460 or 2SC829
Q12 2SK49
IC10 78L06
IC7 AN315
IC6 ½ 1548
Q16 2SB561
Q15 2SC458
Q24 2SA562 or 2SA673
Q17 2SC1061
IC9 CC1 3001
IC8 TA7310P or AN103
Q22 2SC460 or 2SC829
Q13 2SC458
Q14 2SC458
Q23 2SC458
PA
EXT.
SP
D56 SG2-N52-02
ANT.
Q21 2SC2312
Q20 2SC2166
Q19 2SC1166
2SC1173 or 2SC1419 Q18
13.8V

SCHEMA A BLOCCHI



CARTA DELLE TENSIONI

		Vb (V)				Vc (V)				Ve (V)				
		TX		RX		TX		RX		TX		RX		
		AM	SSB	AM	SSB	AM	SSB	AM	SSB	AM	SSB	AM	SSB	
Q 1	2SC1856	0.4	0.4	3.5	3.5	0.4	0.4	7.8	7.8	0.2	0.2	1.9	1.9	
Q 2	2SC 460	0.2	0.2	1.2	1.2	0.4	0.4	7.7	7.7	0.1	0.1	0.8	0.8	
Q 3	2SC 460	1.8	1.8	1.7	1.7	4.2	4.2	4.1	4.1	1.1	1.1	1.0	1.0	
Q 4	2SC 460	0.1	3.7	3.3	3.3	6.1	6.0	6.0	6.0	0.4	3.1	2.6	2.6	
Q 5	2SC 460	0.0	0.0	1.4	1.4	0.0	0.0	4.7	4.7	0.0	0.0	0.7	0.7	
Q 6	2SC 458	0.4	0.4	1.4	1.4	11.2	11.2	4.9	4.9	0.1	0.1	0.7	0.7	NO SQUELCH
				0.3	0.3			11.6	11.6			0.0	0.0	SQUELCH
Q 7	2SC 458	11.2	11.2	4.9	4.9	11.1	11.1	11.6	11.6	10.4	10.4	4.2	4.2	NO SQUELCH
				11.6	11.6			11.6	11.6			10.8	10.8	SQUELCH
Q 8	2SC 829	2.9	2.9	2.8	2.8	6.3	6.3	6.2	6.2	2.8	2.8	2.0	2.0	
Q 9	2SC 829	2.8	2.8	2.7	2.7	6.0	6.0	5.9	5.9	2.2	2.2	2.1	2.1	
Q11	2SA 673	0.0	0.0	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	
Q13	2SC 458	0.8	0.3	0.3	0.3	0.1	6.0	6.0	6.0	0.0	0.0	0.0	0.0	
Q14	2SC 458	0.8	0.8	0.7	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Q15	2SC 458	1.3	1.3	1.3	1.3	5.2	5.2	5.2	5.2	0.7	0.7	0.7	0.7	
Q16	2SB 561	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Q17	2SC1061	6.8	7.6	7.9	7.9	13.2	13.6	13.7	13.7	6.2	13.6	13.7	13.7	
Q18	2SC1419	8.8	8.8	8.8	8.8	13.2	13.2	13.7	13.7	8.3	8.3	8.1	8.1	
Q19	2SC2003	1.8	1.8	0.0	0.0	13.2	13.2	13.7	13.7	1.3	1.3	0.0	0.0	
Q20	2SC2166	0.6	0.6	0.0	0.0	5.5	13.2	13.7	13.7	0.0	0.0	0.0	0.0	
Q21	2SC2312	0.6	0.6	0.0	0.0	5.5	13.2	13.7	13.7	0.0	0.0	0.0	0.0	
Q22	2SC 829	0.5	0.5	0.5	0.5	3.3	3.3	3.3	3.3	0.0	0.0	0.0	0.0	
Q23	2SC 458	0.1	0.1	0.0	0.0	2.7	2.7	1.6	1.6	0.0	0.0	0.0	0.0	
Q24	2SA 673	1.5	1.5	13.3	13.3	0.0	0.0	0.0	0.0	2.2	2.2	13.7	13.7	

		Vg (V)				Vd (V)				Vs (V)				
		TX		RX		TX		RX		TX		RX		
		AM	SSB	AM	SSB	AM	SSB	AM	SSB	AM	SSB	AM	SSB	
Q10	2SK 55	0.0	0.0	0.0	0.0	0.0	0.0	5.4	5.4	0.0	0.0	1.4	1.4	
Q12	2SK 49	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	

			PIN NO.	1	2	3	4	5	6	7	8	9	10	11
IC 1	H8D1210	RX		0.0	0.8	7.9	0.4	7.7	0.0					
		TX		0.0	0.0	0.0	0.0	0.0	0.0					
IC 2	SL1612C	RX		0.0	7.3	2.7	0.0	0.9	0.9	2.0	0.0			
		TX		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
IC 3	SL1611C	RX		0.0	5.4	1.5	0.0	0.8	0.8	0.8	0.0			
		TX		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
IC 4	SL1640C	RX		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
		TX		0.0	3.8	3.8	8.2	7.1	6.9	3.8	0.0			
IC 5	SL1640C	RX		0.0	2.5	2.5	5.4	4.8	4.8	2.4	0.0			
		TX		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
IC 6	MC1458	NO SQUELCH		11.6	1.7	2.0	0.0	5.2	5.2	5.2	12.3			
		SQUELCH		2.1	4.1	2.1	0.0	5.2	5.3	5.3	11.7			
IC 7	AN 315			5.8	0.0	1.3	7.1	10.6	5.5	0.0	5.6	5.5	13.4	13.7
IC 8	AN 103	RX		2.5	2.0	1.3	1.6	0.0	0.9	2.2	8.1	0.5		
		TX		2.5	2.0	1.3	1.6	0.0	0.9	8.0	8.1	13.2		
IC10	78L06			13.7	0.0	6.0								

IC9 CCI3001 (CH No. 1)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
TX AM	0.1	6.0	3.1	3.1	0.0	3.3	3.1	3.4	3.1	0.1	0.6	0.6	0.6	0.6	0.6	0.6	3.1	0.0
SSB RX AM	0.1	6.0	3.1	3.1	0.0	3.3	3.1	3.4	3.1	6.0	0.6	0.6	0.6	0.6	0.6	0.6	3.1	0.0